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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/848,563	05/03/2001	David M. Pepper	B-3896 617785-5	6818
36716	7590	01/13/2005	EXAMINER PHAN, HANH	
LADAS & PARRY 5670 WILSHIRE BOULEVARD, SUITE 2100 LOS ANGELES, CA 90036-5679			ART UNIT 2633	PAPER NUMBER

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/848,563

Applicant(s)

PEPPER, DAVID M.

Examiner

Hanh Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-68 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-8,11-25,27,29-46,51-56,58 and 63-68 is/are rejected.
- 7) ☒ Claim(s) 3-5,9,10,26,28,47-50,57 and 59-62 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on 08/24/2005.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 6-8, 11-25, 27, 29-46, 51-56, 58 and 63-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown, Jr. et al (US Patent No. 5,051,571) in view of Wirth (US Patent No. 6,630,656).

Regarding claims 1, 16, 37, 45 and 68, referring to figures 1, 4 and 5, Brown discloses a method of optically interconnecting a first station to a second station (Fig. 1) by coupling a first optical beam (i.e. optical beam 13, Fig. 1) and a second optical beam (i.e., optical beam 51, Fig. 1), the first optical beam originating from the first station and being directed to the second station, the second optical beam originating from the second station and being directed to the first station, the method comprising the steps of:

providing a first adaptive optical module (i.e., a first adaptive optical module LCLV 11, Fig. 1) and a second adaptive optical module (i.e., a second adaptive optical module LCLV 17, Fig. 1);

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disposing the first adaptive optical module (first adaptive optical module LCLV 11) in a path of the first beam for

reflecting and directing the first beam (optical beam 13) to the second adaptive optical module (second adaptive optical module LCLV 17); and

reflecting the second beam (optical beam 51) received from the second adaptive optical module (second adaptive optical module LCLV 17), and directing the second beam to the first station; and

disposing the second adaptive optical module (second adaptive optical module LCLV 17) in a path of the second beam (optical beam 51) for

reflecting and directing the second beam (optical beam 751) to the first adaptive optical module (first adaptive optical module LCLV 11); and

reflecting the first beam (optical beam 13) received from the first adaptive optical module (first adaptive optical module LCLV 11), and directing the first beam to the second station (see from col. 5, line 63 to col. 7, line 25).

Brown differs from claims 1, 16, 37, 45 and 68 in that he fails to teach wherein each adaptive optical module comprising an adaptive optical wavefront corrector and a wavefront error sensor. However, Wirth in US Patent No. 6,630,656 teaches an adaptive optical module comprising a adaptive optical wavefront corrector and a wavefront error sensor (Figs. 1 and 2, col. 1, lines 45-64 and col. 5, lines 3-54). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the adaptive optical module comprising a adaptive optical wavefront corrector and a wavefront error sensor as taught by Wirth in the

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system of Brown. One of ordinary skill in the art would have been motivated to do this since Wirth suggests in column 1, lines 45-64 and col. 5, lines 3-54 that using such the adaptive optical module comprising a adaptive optical wavefront corrector and a wavefront error sensor has advantage of allowing compensating the distortion of signal.

Regarding claims 2, 7, 17, 18, 38, 46, 55, 64 and 65, the combination of Brown and Wirth teaches compensating for propagation errors and wherein the first and second optical modules function in a closed-loop fashion (Figs. 1 and 2 of Wirth).

Regarding claims 8, 32, 51 and 63, Brown further teaches the adaptive optical modules comprise LCLVs, liquid crystal SLMs, deformable MEMS devices, optical MEMS-based SLMs, or liquid crystal cell with transparent electrodes, or any combination thereof (Fig. 1, the adaptive optical modules LCLV 11 and 17).

Regarding claim 11, the combination of Brown and Wirth discloses a method of creating an optical link between a first and a second station for the purpose of exchanging information between the two stations (see Fig. 6 of Brown), the method comprising the steps of:

providing a first optical beam (i.e., a first optical beam 13, Fig. 6 of Brown) emanating from the first station, and a second optical beam (i.e., a first optical beam 51, Fig. 6 of Brown) emanating from the second station;

pointing the first optical beam (i.e., a first optical beam 13, Fig. 6 of Brown) and the second optical beam (i.e., a first optical beam 51, Fig. 6 of Brown) to a common location (i.e., a common location LCLV 111, Fig. 6 of Brown);

directing each beam into a reverse direction of the other so that each station receives the beam which emanated from the other station; and

correcting propagating distortions of the first and second optical beams (see Fig. 6 of Brown, col. 9, lines 23-60 and Figs. 1 and 2 of Wirth).

Regarding claims 12, 29, 30, 43, and 58, the combination of Brown and Wirth teaches the step of correcting propagation distortions of the first and second optical beams includes a step of planarizing the wavefronts of the first and second optical beams, the step of planarizing the first and second optical beams being carried out by at least one adaptive optical module, the at least one adaptive optical module functioning in a closed-loop fashion (Fig. 1 of Brown and Figs. 1 and 2 of Wirth).

Regarding claims 13, 19, 20, 33, 34, 41, 42, 52, 53 and 56 the combination of Brown and Wirth teaches the step of compensating for tilt and focus errors of the first and second optical beams, the step of compensating for tilt and focus errors being executed by at least one optical tilt focus error compensator (Figs. 1 and 2 of Wirth).

Regarding claims 14, 31 and 44, it would have been obvious to obtain wherein information is encoded onto the first optical beam and the second optical beam at the first station and second station in order to reduce the signal errors.

Regarding claims 15, 35 and 66, Brown further teaches wherein the first and second stations comprises at least one transceiver (Fig. 1).

Regarding claim 21, it would have been obvious to obtain at least one optical tilt focus error compensator is disposed between the first adaptive optical module and the second adaptive optical module in order to compensate the focus-error of the signal.

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Regarding claims 22, 23, 39 and 40, the combination of Brown and Wirth teaches wherein at least one of the first and second adaptive optical modules comprises an adaptive optical wavefront corrector and a wavefront error sensor (Figs. 1 and 2 of Wirth).

Regarding claim 24, Brown further teaches further comprising:

a first beam splitter for splitting the first beam, the first beam splitter being disposed in a light path between the first and second adaptive optical modules; and

a second beam splitter for splitting the second beam, the second beam splitter being disposed in a light path between the first and second adaptive optical modules (Fig. 1).

Regarding claim 25, Brown further teaches wherein the first and second adaptive optical modules function in reflection mode (Fig. 1).

Regarding claim 27, Brown further teaches wherein the first and second adaptive optical modules function in transmission mode (Fig. 1).

Regarding claims 36 and 67, Brown further teaches wherein at least one of the first and second stations is moving station and wherein the interconnect provides for auto tracking of the at least one moving station (Fig. 1).

Regarding claim 54, although Brown does not specifically teach the adaptive optical wavefront corrector having a first region and a second region. However, it would have been obvious to obtain the adaptive optical wavefront corrector having a first region and a second region in order to reduce the size, weight and cost of the system.

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***Allowable Subject Matter***

4. Claims 3-5, 9, 10, 26, 28, 47-50, 57 and 59-62 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

5. Applicant's arguments with respect to claims 1-68 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.



**HANH PHAN  
PRIMARY EXAMINER**